

YOR919930093US3
Serial Number 10/827,080

LISTING OF THE CLAIMS

1. - 25. (canceled)

26. (previously presented) (to be renumbered as claim 1) An apparatus for sensing a magnetic field by the giant magnetoresistive effect comprising:

a substrate;

a layer of ferromagnetic material formed over the substrate, the layer of ferromagnetic material having a plurality of nonmagnetic regions formed therein whereby magnetic flux paths form around each one of the plurality of nonmagnetic regions when the layer of ferromagnetic material is not in a magnetic field, the flux paths being contained completely within the layer of ferromagnetic material and not penetrating into the plurality of nonmagnetic regions, and

means for detecting a change in resistance through the layer of ferromagnetic material as a function of a magnetic field applied to the layer of ferromagnetic material.

27. (previously presented) (to be renumbered as claim 2 with proper dependency) The apparatus of claim 26 wherein each of the plurality of nonmagnetic regions has dimensions less than about 350 nm.

28. (previously presented) (to be renumbered as claim 3 with proper dependency) The apparatus of claim 26 wherein:

the layer of ferromagnetic material is formed from nickel, cobalt or alloys thereof, and
the plurality of nonmagnetic regions is formed by diffusing germanium or silicon into the layer of ferromagnetic material.

29. - 31. (canceled)

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Serial Number 10/827,080

32. (previously presented) (to be renumbered as claim 4 with proper dependency) The apparatus of claim 28 wherein the plurality of nonmagnetic regions is formed employing an ion implantation method.